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SILVERSMITHING IN COLONIAL AMERICA

The information in this article has been extracted from the Colonial Williamsburg research report on silversmithing. The report was prepared by Mr. Thomas Bullock of the research department and Mr. William DeMatteo, silversmith of Colonial Williamsburg. Printed by permission of Colonial Williamsburg, Inc.

Although none of the Williamsburg silversmiths, or any other American silversmith, appears to have left any account of his operations, it is possible, by means of various contemporary European technical publications, to gain a fair conception of the methods, techniques, and processes employed by the silversmith in the execution of his work. Unfortunately, the descriptions contained in these early works are all too brief to be entirely satisfactory and the processes they describe are sometimes beyond the technical equipment available to the American silversmith. In translating the English or European example to the American colonies, therefore, it is well to keep in mind that the colonial silversmith may have had equal skill, but that his style and equipment tended to be some years out of date.

According to a book written in 1747 for the advice of parents who were about to apprentice their children to a trade:

> "The Goldsmith, or as some call him, Silversmith, is employed in making all manner of Utensils in those rich Metals, either for Ornaments or Use. His Work is either performed in the Mould, or beat into Figure by the Hammer or other Engine: All Works that have any sort of Sculpture, that is, raised Figures of any sort, are cast in Moulds, and afterwards polished and finished. Plates or Dishes of Silver are beat out from thin flat Plates; Tankards and other Vessels of that kind, are formed of thin Plates soldered together, and their Mouldings are beat, not cast. Their Business required more Time and Labour formerly than at present; they were obliged to beat their Metal from the Ingot into what Thinness they wanted; but now there are invented Flatting-Mills, which reduce their Metal to what Thinness they require, at a very small Expence.
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> The Goldsmith Makes all his own Moulds, and for that Reason ought to be a good Designer, and have a good Taste in Sculpture. He must be conversant in Alchemy; that is, in all the Properties of Metals: He must know the proper Menstruums for their Solution, the various Methods of extracting and refining them from their Dross and Impurity; the Secret of mixing them with their proper Alloy: He must know the various Ways of Essaying Metals, and distinguishing the real from the fictitious."[1]

In 1767, Philippe Macquer reported in his *Dictionnaire portatif des arts et metiers* that:

> "The various utensils that the goldsmiths make, offer a complete enumeration too extensive for us to be able to treat each one separately. We will limit ourselves to observing that one distinguishes in this art two principal types of works; that is to say, work in *plate all in one piece and unsoldered*, & work in *plate built up*. For example of the first, we shall give the method of manufacturing a plate. As for the manner of casting the gold and silver into an ingot, *see monnoyeur*.
>
> When one wishes to make a plate, one begins by stretching from the ingot the necessary silver; one hammers it into a slab in order to be sent to the *marque:* an indispensible precaution to avoid the fine and seizure to which it would be subject, if one should find it in the shop of the goldsmith without being marked.
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> On the return from the marking, one hammers it into the size that he desires: as it is hammered, one makes the moulding which should extend all around the plate. For that, one takes a bit of ingot which he hammers square, according to the size that he wishes to give to the moulding, & one passes then into a draw-plate, whose size is cut out according to the form that one wishes the moulding to take: one is obliged to anneal it several times, in order that it may not break. After the moulding has been drawn in the draw plate, one shapes it following the design which serves as a pattern, & one solders it all around the plate with solder of *one quarter copper*.
>
> The goldsmiths make four sorts of solder, & in order to distinguish them, they call them solders of eight, of six, of four, & of three which is the most readily melted. They mean by solders of eight, those having only an eighth

of red copper with seven parts of silver; the second has a sixth of copper, the third a quarter of it, and the fourth a third. It is this mixture of copper in the silver solder, which makes the built up pieces always less expensive than the ones made all in one piece, in which there is little or no solder.

The moulding having been soldered, one *trims* the plate, that is to say, one removes with a file the superfluous material around the edge; one takes off with an engraving tool the solder which may have run down on the plate, & one sends it to the shop of the *planisher.*

The first operation of the planisher is *to form the filet bordering the inside of the plate* with various planishing hammers, similar to those of the tinsmiths: the filet of the plate is the part which borders the moulding on the inside.

The filet having been formed, the plate comes back a second time to the goldsmith's shop, who touches up or who finishes the moulding, with riffles, scorpers, & engraving tools. The *riffles* are a sort of file slightly recurved at the end; and the *scorpers* are a kind of graver.

The moulding being absolutely finished, one sends the flat plate to the *polisher's shop* for polishing the moulding only, without touching the base, which is the work of the planisher, as we shall see hereafter.

The polisher begins by passing over the moulding of the plate a stone called polishing stone; after this operation, she passes over it pumice ground with oil, & rubs it with little pieces of wood; then she passes tripoli over it.

When she perceives that her work is quite smooth, she wipes it with a cloth, rubbing it in order to burnish it as much as possible with a kind of stone called *rotten stone,* suspended in brandy. To give this last polishing, she uses a brush or a bit of skin saturated with this mixture.

The plate, returned from the hand of the polisher, passes again into those of the planisher, who puts the finishing touches on it by forming its base, & determining its depth without using any other tools than planishing hammers designed for this purpose.

Planished silver has an effect much more striking than if it were polished.

As for built up pieces, one can easily see that it is merely the assembly of several pieces that one solders together, & from which one forms a whole representing what one desires.

The pieces are hammered or turned separately, & after having soldered them together with the *solder of six,* one polishes them in the same manner as the solid pieces."[2]

A number of these early technical publications contain invaluable illustrations which show not only the physical appearance of silversmiths' shops, but the smith and his assistants at work as well. From these, we are able to gain an insight into the manner in which the smith proceeded to accomplish his task.

With the exception, perhaps, of a few extremely prosperous smiths, the colonial American silversmith would not have had a shop as large or as elaborately furnished as that pictured in Diderot's *Encyclopedia* or other contemporary European publications. He would have had to employ the same methods pictured there, however, working in one or two rooms of his home, or in some cases, in a separate building which served as his shop.[6]

In setting up his shop for operation, his first concern would have been his forge, in which he would have been able to melt and solder his silver. In re-creating the shop of James Craig, we, also, made the matter of a workable forge our primary experiment.

Such devices are mentioned in Theophilus and by Cellini in his sixteenth century treatise on the goldsmith's art, but the only picture we were able to find was in Diderot's *Encyclopedia,* where a plate revealed some approximate arrangements.[7] After a number of unsuccessful attempts we were able to construct a similar forge of workable dimensions and capacity. Operated by a large bellows which exerted air through a nozzle that entered the fire pit just above the grate, we were able to achieve an arrangement that produced about enough fire to melt silver (1760° F). We made arrangements in our forge whereby the fire could be raised by a series of pans and connecting nozzles, to facilitate annealing and soldering.

After the colonial Williamsburg silversmith had his forge in operating condition, he could then assemble his tools and supplies and proceed to make his wares.

For the most part he started his work with a bag of coins, old discarded pieces of plate, or sometimes a combination of both, brought into his shop by the customer, at which time a general design would have been agreed upon and of course a fee would have been arranged — so much per ounce to fashion the piece. Perhaps one reason for the scarcity of large pieces of southern silver is the fact that hard money, although used, was never coined there. Paper and tobacco notes were the general tenders.

The assay of coins was a relatively simple matter, for each denomination of coin had a specific weight and to determine a coin's authenticity one required but a scale and a set of weights. The assay of old pieces of plate was a more delicate business, however, and required much more time and material, for each part of the piece had to be tested, the feet, handle, spouts, hinges, covers, finials and body had all to pass the tests. And, too, when assaying, the silversmith had to take into account the solder fusing the old piece together. The quality of silver can be ascertained by rubbing it on the "touch stone" and comparing the color of the "touch" with a piece of silver of known quality.

The raw silver was then ready to melt. The coins, or old plate, were placed in a "black lead" pot, or graphite crucible, which was placed directly into the fire of the forge. During the melting of the silver, it was necessary to preclude the oxygen from the silver by covering the silver with a layer of flux, probably powdered fluxes.[8] When the silver became suitably molten,

about 15 to 20 minutes in the forge with constant pumping of the bellows, the crucible was grasped with a pair of "tongs" and the molten silver was poured off into an "ingot mould" or "skillet." An ingot mold is merely two slabs of iron with a cavity to contain the silver between when they are clamped together. A skillet is an open mold with a handle.

Since no evidence is available that flatting mills were utilized by the colonial smiths, they must have had to "beat their metal from the ingot into what thinness they wanted." The physical labor exerted to reduce an ingot to sheet by hammering it out is not as great as might be suspected. We were able to accomplish the task many times from cast ingots in less than two hours. That was with one man working with a two pound sledge. However, if an ingot is attacked, as is pictured in Diderot's *Encyclopedia,* Plate I, Orfévre Grossier, Ouvrages, with two men and a two hand sledge the required sheet could be accomplished in much less time.

Just how thin the ingot was reduced would have been determined by the individual craftsman's desire of a particular forming operation. There were a number of methods available to the colonial silversmith, for a piece could have been seamed, raised, forged, creased, hollowed or cast.[9] The craftsman used no one of these methods exclusively, disregarding all the others and at times he probably combined a number of them to achieve his finished piece. It has been noted, that, although seaming was by far the most popular English method, it is the fastest of all methods. The theory that soldering was feared has some basis of truth. However, many pieces of early silver still extant are elaborately pieced together and, in fact, almost all silver handles were made in two pieces. Contrary to popular belief, seaming is not a method brought about by more easily accessible sheet from the flatting mill, for English silver, as early as the sixteenth century, has been observed to be seamed. A proof to the antiquity of the method is that the Greeks valued much of their work for its lightness, which was hammered out of thin pieces of plate and joined together.

The relative importance of raising and forging is difficult to ascertain. We believe that both methods were in common use, employed at the discretion of the individual silversmith, and, more likely than not, the two methods were probably combined in a single piece. There are many arguments for and against each method as the prevailing eighteenth century practice, however, it is important to relate that on experimentation we found one method could replace the other for effect. For instance, it is rather a simple matter to quadruple the edge thickness of a raised piece by beating the edge back. Likewise, it is possible to start with an intermediate piece of raw silver and, by a combination of hollowing and "caulking" the edge, a likewise similar piece can be effected.

All the methods were known and used when and how the silversmith wished their employ. To claim that any one forming method took precedent over another as the main eighteenth century practice is mere speculation, for there is enough proof to discredit any such statement.

As stated before, during our experimentation we were able to duplicate pieces of silver that were thought to be forged by the use of the raising method. We also were able to obtain extremely heavy edges by using the hollowing method. From all our experimentation we believe that the choice of the forming method of the eighteenth century colonial silversmith was a personal one, dictated by his familiarity, skill, and faith in each of the methods, and not by the fact of how his contemporaries practiced. It is necessary to re-describe the processes in forming operations so we shall therefore proceed from the point after the initial forming and planishing.

When silver is heated for annealing, that is, heating to dull red heat to resoften it, it accumulates a bluish-grey coating, commonly called "fire" or "fire scale," copper oxide, caused by the oxygen uniting with the copper in the silver. This fire scale is covered by a thin layer of pure silver when the piece is placed in the pickle. (This "coating" of pure silver is a result of the acid "pickle" having dissolved away the surface copper oxide. Ed. Note). Although it is possible to preclude the fire scale by use of a flux, the old-time silversmith rarely did. Instead he allowed the scale to form, coated it with pure silver, and then during the polishing operation he tried to retain the pure silver coating by not burnishing through it. This accounts for the delicate color on the old silver now in existence. In no case, should an old silver piece be polished on a modern-day lathe, for the fire scale would be removed, spoiling the beauty and ultimate value of the piece.

Polishing was done by hand, rubbing lump pumice on the piece to remove the bad scratches. It was then rubbed with a polishing compound and then a burnisher, highly polished steel or stone, was rubbed over the surface to give it some brilliance. Some known polishing and coloring compounds of the eighteenth century are water of ayr stone, pumice, crocus, sand-paper, emery, tripoli, rotten stone, alum, salt petre, whiting, rouge, and chalk.

The manner of chasing, engraving, and casting are all the same now as they were then.

Since our experimentation on eighteenth-century silversmith practices has not been completed, we shall be able to relate only briefly on them. The forge itself is about 30 inches high with a 12-inch by 12-inch square opening about 18 inches deep for the fire pit.[10] We have constructed two grates, a grilled one and a solid iron one. Below the grate is the ash pit, fitted with an access door at the bottom to remove the ashes. The nozzle from the bellows enters the fire pit just above the grate and, as previously described, various connecting nozzles have been arranged to facilitate the raising and lowering of the fire for the various operations connected with the forge. For instance, in melting, the crucible is placed far down into the fire pit and charcoal is piled around and above it. For annealing, the fire will be raised to the top of the pit by a funnel like arrangement. For soldering, the same placement of the fire is used. Although it has not yet been attempted, the soldering was accomplished in this manner. The piece was placed in the fire to heat it up to about 900° or perhaps a little less. The blow pipe was then brought into use to give heat at specific points. At this time we really cannot elaborate on the soldering, however, in the near future the methods will have been explored.

We found that in order to get a workable ingot, it had to be cast in a closed mold, an ingot, that is, that was to be used for sheet. The long bar molds and large skillet molds also worked well for their use. The condition of the surface of the ingot mold made little difference for we cast ingots with both sides of the mold pitted and we then cast ingots with one side of the mold polished smooth, finding that all the ingots resulted approximately the same.

On reducing the ingot down into sheet with a hammer, it was found that the greater the original reductions in gauge of the ingot the better the resulting sheet. For this purpose, it was found that hot forging was by far the most satisfactory method, for the silver could be compressed more rapidly while hot, than cold. The ingot reduced down remarkably fast using the hot forging method; an ingot two inches by five inches by 3/8 inch thick, was reduced down to a sheet 6½ by 12 inches by gauge 18 (.040) with a two-pound sledge, in a little less than two hours. Many ingots were purposely cast badly to see the effect of hammering. In most cases, no defects were apparant until the sheet was rather thin, gauge 15 or 16.

Those ingots, which were cast well, produced very workable sheet, however, in all cases it was more brittle and required more delicate handling than rolled commercial sheet. We were able to raise circles and draw wire from the hand hammered sheet and if the proper precautions, such as frequent annealing were observed, satisfactory pieces could be and were evolved. It was rather a simple matter to hammer out the sheet from the ingot, giving us sheet rivalling commercial stock, for evenness, smoothness and uniformity of gauge.

It was found, that while reducing the ingot, it was quite possible to vary the gauge in certain places, which later led to other interesting observations. For instance, if the circle for a heavy edged bowl was desired, it was possible to allow the silver to remain heavier at the circumference of the circle, thereby permitting us to raise the bowl but still achieve an extremely heavy rim.

We think that we have definitely established that the eighteenth century silversmith had little trouble obtaining his sheet, or raw working stock.

As was stated earlier in this chapter, we attempted, by experimentation, to establish the relative importance of the main forming methods, forging, raising, and hollowing. Perhaps our results proved negative, for we were able to substitute one method for the other, thereby arriving at no *one* primary practice. Our trials, especially when co-ordinated with the varying types of raw silver we were able to hammer out of ingots, proved to us that any of the methods were used and most likely in combination.

Later Developments in the Craft

The eighteenth century was a significant period in the history of the silver craft, for it marked not only the attainment of the highest state of development yet known by the craft but. with the introduction of mechanical contrivances into the manufacture of silver plate, virtually the end of the craft as an individual creative art. So great has been the mechanization of the silver craft that today there is no compelling need for a producer of silver plate to have in his employ a hand craftsman for this work.

The mechanization of the craft of silversmithing began somewhat later in the United States than in Europe, but had made substantial inroads by the time of the War Between the States. The first, and probably the most important, mechanical process to be introduced into the manufacture of silver plate was that of metal spinning, which is the shaping of a revolving disk of metal by forcing it down over a spinning wooden chuck on a lathe by the use of large pressing tools. This process was a tremendous time and labor saver to the silversmith, for it reduced the amount of actual hand work which went into the making of a piece of hollowware to a fraction of its former requirements. The introduction of this means of mass production was, however, only the first of many steps which led to the ultimate decay of the craft of silversmithing as an individual creative accomplishment.

Following rather closely behind metal spinning were two other mechanical innovations which were to have significant effects upon the craft. These were stamping and electroplating. Stamping was, itself, not an entirely new technique in the making of silver for the process had been employed earlier through the use of hand tools. With the introduction of mechanical means for executing the operation, however, hand tools were replaced by ones driven by waterpower, steam, and, later, electricity. Unlike stamping, though, electroplating was an entirely new technique, previously unknown and unused, in the craft. For many years, the practice of over-laying a base metal, specifically copper, with a thin layer of silver then fusing the two metals to produce a strong and beautifully appearing, yet somewhat less expensive sterling substitute, had been employed in the making of Sheffield Plate. Through the electroplating method, however, baser metals, such as copper, brass, nickel silver, or German silver, and others were given a coating or deposit of pure silver through a chemical process known as electrolysis. This greatly simplified the production of plated silver and placed it within the economic range of many who had been unable to afford either Sheffield or sterling silver plate previously. Today, the manufacture of plated silver constitutes a major portion of the sales of manufacturers of silver products.

A somewhat later development in the silver craft was the introduction of a mechanical blow pipe, replacing the traditional mouth blow pipe, which utilized, instead of man's breath, compressed air and gas. Prior to this, the use of the unsatisfactory and often uncontrollable oil lamp and mouth blow pipe had rendered a soldering one of the most difficult and trying tasks the silver craftsman was called upon to perform. All too often, his efforts came to little but disappointment as he saw his carefully executed pieces melt away and disappear into his soldering forge. The mechanical blow pipe and the succession of improvements which have been made in it have reduced soldering to a relatively simple and completely controllable operation with none of the disastrous effects known to the early craftsman.

Considered purely from the standpoint of the physical labor and time involved, the polishing of silver was one of the most unrewarding and tedious operations en-

countered in the making of silver plate. A newly made piece of plate was covered with a multitude of cuts, scratches, hammer marks, and other abrasions which had to be removed in order to put the piece in a finished condition. The removal of these marks was accomplished by rubbing the object with pumice, rotten stone, crocus powder, or other iron oxides, until the blemishes had disappeared and a high polish remained. The introduction of mechanical means for performing this reluctantly undertaken task was undoubtedly heralded by silversmiths a notable achievement. Today, however, with an array of mechanical devices undreamed of by the colonial silversmith, the polishing of silver continues to be a time-consuming and menial, as well as laborious pursuit.

APPENDIX — HANDWORKING SILVER

Silver is occasionally found in its natural state. However, it is more generally found combined with other metals and substances, for few metals have as great a variety of natural combinations as does silver. Its ore, sometimes mined in the open pit, is mostly mined from deep mines, such as the 1800 foot deep lode of Guanaxerato, Mexico. Two-thirds of the world's supply comes from the United States and Mexico. Because of federal policy regarding silver, however, that mined in the United States is not used commercially, and American manufacturers of silver products must rely on imported Mexican metal for their wares. Silver ores for centuries were treated by amalgamation but lixiviation processes, whereby the silver is dissolved and the impure solutions washed out, were introduced in the nineteenth century. Separated from lead by cupellation or produced by the cyanide method, silver still contains small amounts of other metals, which are further separated by electrolysis.

The melting point of pure silver is 962 degrees Centigrade. In its molten state, it has the property of occluding or "taking up" about 22 times its volume of oxygen. Upon cooling, this oxygen is violently ejected, producing the phenomenon known as "spitting" or "sprouting." It is, therefore, necessary, when melting the metal for casting, to add a protective covering of powdered charcoal, or other non-oxidizing flux, to help diminish the occlusion. The addition of an alloy, usually copper, also aids considerably to reduce the spitting.

Fine, or pure, silver, too soft to be useful in the manufacture of silver wares, is alloyed with copper to harden it. The addition of copper increases the silver's hardness and toughness, and various other such alloys are used almost exclusively when silver is worked or formed. The proportion of silver in alloys is termed "fineness", which means, parts of silver in 1,000 parts of alloy, thus 925 fine, or sterling silver contains 925 parts silver and 75 parts copper.

Sterling has been the standard alloy since the time of the Romans. The term originated in the 12th century with and from the expert melters and coiners from East Germany, who were known as the "Easterlings." The term has since been shortened to "Sterling," signifying, for silver, a standard quality beyond any doubt, and in the course of the years has become part of our common speech as an expression of honest quality and high merit.

The silver craftsman today may buy, from any number of refining companies, all the various shapes and grades of silver needed in his production of finished pieces. Since these refining companies undertake to furnish any form of silver desired, the necessity of the modern silversmith to be his own refiner, smelter, assayer and sheetmaker, has been eliminated. For the casting of various ornaments, feet, finials, and so on, sterling silver shot, beads of silver about ⅛ inch in diameter, may be purchased. It is usually unwise to melt and cast old scrap about the shop, as impurities are bound to find their way into such cuttings.

The general method of casting in silver usually incorporates the use of sand, although for small casting, cuttlebone, soapstone, sandstone, brick, compressed charcoal or graphite are sometimes utilized. Fine sandstone, or marl, is by far the best type of sand to use in silver casting, for this material is such that it will bind well under pressure and retain the impressions made in it.

To cast a silver ornament, a perfect model is required, as the finished casting should be identical to the pattern used, and if a model that is unsatisfactory is used, in the mold, the resultant casting can only be equally unsatisfactory. The patterns are oftentimes made of brass or lead, however, wood, wax, or any material deemed necessary by craftsmen, may be used, the requisites being, perfect dimensions and ultimate smoothness. Few silver craftsmen of today personally cast all the ornaments found on their work, for there are many shops that deal exclusively and inexpensively with casting by the sand, lost wax, and centrifugal processes.

The silversmith nowadays ordinarily concerns himself only with the making and casting of the original model, and for this reason, few if any, complete casting benches will be found in his shop. However, the modern craftsman must be capable, if called upon to do so, to cast competently in the process of making his original patterns. To cast, the craftsman places a flask, an oblong frame, upon a smooth board or on his bench, and into it, he firmly pounds his sand with a wooden mallet. Care must be exercised to make very sure that the sand is as firm as possible, especially around the flask lest the sand fall away when the flask is turned over. After the model is indented into the sand a covering of fine brick dust is sprinkled over the whole lower flask. This operation is included to facilitate the separating of the two flasks without damaging the mold. The upper flask is then placed directly over the lower one and additional sand is pounded firmly there into. The flasks are then separated, and the gate, a channel for the molten silver, is cut into the sand with a knife. The flasks, containing the sand and minus the model, are baked in an oven to eliminate the excess moisture, bound together, and then receive the molten silver. When cool, the mold is separated, the casting removed, and the sand ground for future use. The gate and webbing, the seam around the casting where the two parts of the mold were joined, are filed away and if any additional work is needed on the casting to make it more perfect, that is performed by chasing, engraving and finally, polishing. The casting, if all went well, should be an exact counterpart of the original impression made in the sand by the model.

Small objects are cast solid, but most larger pieces are cast hollow, in order to economize the metal.

As stated before, the modern silversmith may buy his sheet, wire and other raw materials in the form he wishes. However, if need be, he might cast his own ingot, the form in which most silver pieces start their transformation. So as to obtain as fine a surface as possible on the cast ingot, closed molds are usually used, for silver cast in an open mold is invariably rough, as well as covered with "splitting" holes. Ingot molds are made of iron, in two halves, held together by means of a clamp. They produce a rectangular slab of silver, which may be of any number of dimensions. From these ingots the silversmith may forge out his sheet, or proceed immediately to the forming of the piece to be made by the forging method.

Hammering was undoubtedly the first method applied to metal working, and, even today, the hammer is the silversmith's most useful tool. With it he is capable of producing delicate forms, impossible to obtain by any modern machine. The hammer is the most individual of all the craftsman's tools, for each smith designs and makes his own for his particular services; hammers which he alone may prize but which may be of no consequence to a fellow craftsman. To be a fine silversmith one must be able to use a hammer as an artist paints with his brush, as though it were a natural extension of his arm.

No piece of silver can be produced by any one method alone; various techniques must be incorporated to achieve satisfaction. In forming silver with the hammer, the most general method employed is that of "raising." Raising is a process whereby the craftsman, starting with a light gauge blank of silver, forces the silver over various shaped anvils or stakes to achieve his desired form. The first step in the process is to determine the size of the blank needed to produce the finished piece. Undoubtedly, the most accurate way to do this is to calculate the surface area of the piece to be made. However, this, being a difficult task even for a mathematician, is a fairly impossible one for a silversmith. In actual practice it has been found that if one takes the average diameter of the piece to be made, and adds to it the height, the diameter of the starting disc is determined. It may be found that additional judgment will influence the calculations slightly, but as a general rule, the mean diameter plus the height will usually be accurate enough.

Some smiths use as their first step in hammering the stabilization of the edge of the blank to hold the rim rigid, while the object is raised from the flat to a shallow shape. This is accomplished by placing the disk on a sand bag and, with a round faced hammer, a ridge is hollowed all around the disk, about ½ inch in from the edge. The actual raising of the piece is then begun. The silversmith takes the blank, with the edge crimped, and holds it against an anvil or raising stake with the side of the silver intended as the inside of the object, against the face of the anvil. Then, using a raising hammer with a rounded face, he strikes a series of blows around the blank in ever-increasing concentric circles, drawing the metal in over the stake and gradually producing first a shallow then a deeper hollow in the blank. In the course of the raising operation the flat sheet is transformed into the desired hollow shape without greatly changing the thickness of the metal, except that there is a gradual thickening towards the edge of the hollowed place. Using this method, it is possible to change the direction of the design line any number of times as well as accomplish the metal to acquire any desired shape.

Another way of forming silver is a process called forging, a method which may be more easily visualized, for, as the name implies, the metal is forged into shape, as the blacksmith forges his iron. Here the silversmith initiates his work with a disc of heavy silver, the diameter of which is the same as the rim of the finished piece. Using a heavy hammer and making direct blows onto an anvil, the silver is made to flow in any direction desired, care being taken never to hit the metal on the edge. As the glass blower forces out his design and as a child blows out a balloon, so does the object take form when guided by the silversmith's forging hammer. There are many distinct advantages to forging a piece of silver, such as the ability to distribute the metal in a desireable manner, the base and rim heavy and the walls light. Also, in forging, it is not necessary to later apply a heavy wire onto the edge, or reinforce the foot, since sufficient silver has already been allocated to these positions. This method, though certainly useful, is more tedious and laborious than forming by raising or seaming. Hammering, or working of silver in any way, tends to harden the metal. During any forming operations the silver is occasionally re-softened and its malleability restored by the process of annealing; the heating of the silver to a dull red color, then quenching in pickle, a solution of sulphuric acid and water.

After having formed an object to his desired design, the silversmith removes all the irregularities with the process of planishing, the method of smoothing the surface with a flat highly polished hammer on a stake similarly polished. When properly performed, planishing leaves a true bright surface, covered with tiny facets which not only add to the artistic effect of the silver, but also characterize fine hand work.

Silver objects are composed of numerous pieces which must be all joined together to form the finished article. The modern silversmith has the advantage on his colonial ancestors in this operation, since he does not have the driving need to make an object comprising as few pieces as possible. With his various grades of solder that melt at conveniently different temperatures and, using his blow pipe, an instrument combining compressed air and gas, the modern smith is little bothered by the problem of melting his work while assembling it, a problem which must have caused much consternation among the early smiths when they saw their toil disappear into a lump at the bottom of the forge. Our modern solders are made in large refining plants where their composition is scientifically controlled to contain the proper amount

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The Chronicle

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The purpose of the association is to encourage the study and better understanding of early American industry, in the home, in the shop, on the farm, and on the sea, and especially to discover, identify, classify, preserve and exhibit obsolete tools, implements, utensils, instruments, vehicles, appliances and mechanical devices used by American craftsmen, farmers, housewives, mariners, professional men, and other workers.

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Communications regarding the contents of *The Chronicle* and back issues should be addressed to the Editor; suggestions for members to Joseph W. Rake; all other matters to the President. Address as here given.

DUES

The annual dues are payable on January 1st and are $5.00. The *Chronicle* is published quarterly with issues in February, May, August and November. The *Chronicle* is sent to all members without additional charge. Printed on the press of the *Virginia Gazette*, founded 1736.

SPRING MEETING

Many of you perhaps are already aware that our next meeting is to be held in Northampton, Mass., at Wiggins Tavern on June 22, 23, 24. Many have inquired from me as to the dates, and no doubt the other officers of the Association as well, so that many might make plans for a vacation or a trip that would bring them within the area where the Association meeting is to be held. Full information, however, will be sent out in due time to each member prior to the meeting. This is just a reminder, so that early plans might be formulated . . . especially by members in the distant areas. If any members would like application blanks, if they will write me, I will be glad to mail them at once so that your friends might also become members of the Association. I wish to take this opportunity to express my appreciation for the splendid help I have had from many of the members during my short period as Membership Chairman. We should like to make this year one of the best in our drive for new members under the presidency of Robert Hill, who was the former membership chairman. For membership applications, drop me a line: Joe Rake, Box 591, Newburgh, N. Y., Membership Chairman — Early American Industries Association. I'll send your prospective member full information and encouragement to join our splendid group.

COMMENDATIONS

Congratulations are in order to Larry Cooke for the outstanding job he did at the Sturbridge and Monroe meetings of the Early American Industries Association in the promotion of the sale of the series of books on English crafts and the Colonial Craftsman. Due to Larry's efforts the Association Treasury is some $34.00 richer.

On page 8 of the January issue of the *Spinning wheel* there appears under Marcia Ray's column, an article concerning the Early American Industries Association. As a result of this article, the E. A. I. A. has received a number of membership inquiries. We wish to extend our thanks to the *Spinning Wheel* for their interest in our organization.

OLD BLACKSMITH SHOP

Shelburne, Vermont — Known as the museum "that is always moving things" the Shelburne Museum recently brought a 150 year old brick blacksmith shop 2600 feet from downtown Shelburne to the museum grounds here.

The blacksmith shop, latest of 21 buildings to be acquired by the museum, represents something rather unusual in a moving problem because it is a shell-type building without inside supporting walls. This construction makes the outside walls stand alone, greatly increasing the risk of collapse during the moving. It measures 24′ x 30′ without the wheelright's wing (which was taken off for the highway move), and is constructed entirely of brick, with a slate roof, the whole thing weighing something over 65 tons.

The W. B. Hill Co., who moved the steamer Ti-

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SCRIMSHAW

By Cedric Larson, Think Magazine, November, 1955 (pp. 14-15), New York, New York, copyright U. S. A., 1955, by International Business Machine Corporation, all rights reserved under Pan American Copyright Union (1910), reprinted by permission of the editor.

In the days when whale oil from New England lighted most of the Western world after sundown, scrimshaw was a common sight in the homes and shops of the great whaling ports of America. And today it is an eloquent reminder of the heyday of whaling, one of the most romantic of American Industries.

In the log of the brig *By Chance,* set down on May 20, 1826, is found the following entry: "All these 24 hours small breezes and thick foggy weather, made no sail. So ends this day, all hands employed scrimshanting." To while away the long hours of whale hunting, the American sailors produced a wide variety of knick-knacks carved from whales' teeth, whalebones and walrus ivory which is known collectively as scrimshaw. Oddly enough, although whaling ships of a dozen countries sailed the seas in pursuit of whale, scrimshaw seems to have been produced chiefly by American sailors.

With rude tools which remind us of the primitive type used centuries before by the Chinese in their ivory carvings, these stalwart whalemen turned out works of amazing intricacy, variety and originality. Usually the only tools employed were the ship's grindstone or file for smoothing down the whale's tooth, a pocketknife or sail needle for etching in the design, red or black India ink for a touch of color, and wood ashes for polishing. However, in exquisite work, we know the following tools were also employed: files, chisels, awls, drills and calipers.

Whale teeth were prepared for scrimshawing by trailing overboard the lower jaw of the whale until sharks ate the flesh and the gums rotted away in the ocean. The free teeth could then be easily drawn, filed smooth and given a high polish with ashes from the trying-pot. Then the figures of fair women or graceful ships or other pleasing motifs were engraved with implements.

The range of items which comprise the vanished nautical art is extremely wide. To name a few, there were forks, knives, spoons, spools, needles, jagging wheels for trimming the edges of pie crusts, adjustable swifts (used for winding yarn from skein into ball), tattoo needles, cribbage boards, boxes, necklaces, corset busks (usually made from the darker baleen of the whalebone), walking sticks, carving of birds, hearts, flowers, a ship at sea, figures from Greek mythology, and even a "seal and walrus persuader" — a simple club.

Perhaps the favorite object for scrimshawing, if we may judge from the number still in existence, was the jagging wheel. This was a notched wheel set in a light handle, one end of which often was bifurcated in a double prong. The wheel was designed to serve a double purpose. Run deftly over the surface of a sheet of dough, it would carve the circular outline of the pie-to-be. But its special purpose was, after the pie-crust had been placed in the pie-plate and trimmed and filled with mincemeat or some fruit, to run about the edge of the upper and lower crust which rested on the rim, so as to bind them together. Some of the embellishments of the lowly jagging wheel tax the imagination. Thus we often find a piewheel set in the shape of a marine bird, such as a gull, while others have handles which simulate the coot, curlews, mythological creatures and novel fish designs.

Much speculation has taken place over the origin of the term scrimshaw. It was found in Hotten's Slang Dictionary of 1864 which defined the word as "anything made by sailors for themselves in their leisure hours at sea."

Some authorities of whaling lore tell us the word comes from the old term *scrimshander* or *scrimshanker,* meaning an idle or worthless fellow. The Oxford English Dictionary lists the word *scrimshank* as a military slang term of the nineteenth century of obscure origin meaning "to shirk duty."

Still another authority ascribes it to a common origin with the English surname, *Scrimshaw,* which has been traced to the word *skirmisher.* The skirmisher, skrimishers and later scrimshaws were the fencers, fighters and raiders of ancient Vikings on the English coasts and other places. These Vikings were all-around rollicking, roving fencers, fighters and sailors who at times took to whaling. Between short raids while sailing the high seas the ancient skirmishers are reported to have spent their leisure time carving whalebone and whale teeth.

Many ships sailed to the Arctic, Antarctic and far waters of the Pacific in their search for the elusive whale. The period from 1820 to 1860 is the golden age of scrimshaw. While the earliest scrimshawed whale teeth in the museums have been traced to 1829, experts consider it more than likely that much scrimshaw carving may antedate this period by several decades. No trustworthy system of dating scrimshaw has as yet been worked out.

While today there are still ships which go after whales commercially, the romance of whaling's golden age has departed forever. Modern whale ships utilize the entire carcass of the whale, grinding up the bones and teeth to be used as fertilizer. Thus the art of scrimshaw is a vanished nautical art.

Art connoisseurs and collectors of antiques alike compete avidly for a genuine piece of scrimshaw carving that is well executed. It is an item greatly cherished by art dealers as a specimen of real folk art. And there are many museums, particularly in New England, whose collections of scrimshaw are world famous. Scrimshaw can be studied in quantity in such places as Mystic Seaport, Conn., which has the Townshend collection; the Sag Harbor (Long Island) Whaling Museum; the Peabody Museum of Salem, Mass.; and the old Dartmouth Historical Society and Whaling Museum of New Bedford, Mass. They are regarded as outstanding and permanent contributions to the history of America. And in many New England families scrimshaw heirlooms are passed down from one generation to the next as prized keepsakes of a calling which their hardy forefathers followed.

WHAT IS IT?

On page 34 of Volume VIII, Number 3, of *The Chronicle* there appeared a photograph showing a type of tool which Mr. Edward Durrell of Columbus, Ohio, believed might have been used by a thatcher. Mr. Durrell added, however, that he would be interested in any further information on this object.

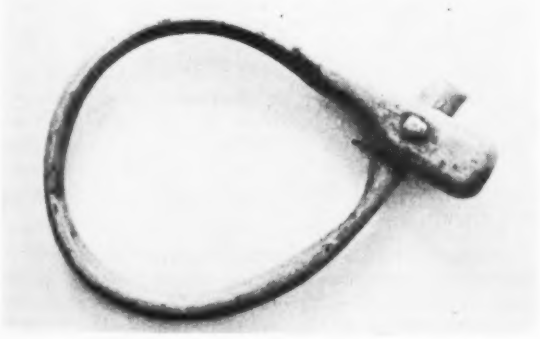
We have received a letter from Mr. John W. Allen, Southern Illinois University, Carbondale, Illinois, which says:

"The lower illustration showing three views of a primitive tool in the July, 1955 issue of *The Chronicle* is that of a hayfork. This fork was used to take hay from a wagon with a handle or trip bar elevated as in the first of the three illustrations.

The fork would be plunged into the top of the hay loaded on the wagon. The lever with the small hole in the top was then depressed as in illustration three. This extended the prongs at the bottom of the fork and prevented the hay slipping off. A large rope was attached by means of a pulley and hooked to the large ring at the top of the fork. A horse hitched to the other end of the rope that had been rigged to pulleys in the comb of the barn would then draw the hay from the wagon to the high track at the top of the mow and down that track to the place where it was to be stored.

A small rope knotted in the eye of the lever and through the large eye at the top of the fork would then be given a vigorous jerk. This released the prongs allowing the hay to fall at the desired spot in the hay mow.

I have used one like this a thousand times."



Mr. Anthony Lucas, 5316 Oakland Road, Chevy Chase, Maryland, is most anxious to receive help in identifying the object pictured above. The photograph shows a wooden loop about 4" x 5" in diameter, considerably worn on the inside. The loop shows that very nice polish that comes only from continuous use and rubbing. Mr. Lucas reports that he has shown this object to four museums and has not received any information. The nail shown at the cross is definitely fixed for it is riveted on the back side. The wood appears to be either hickory or ash and the item was purchased in Vermont. Let's have some answers.

COMMENTS FROM READERS

The following letter has been received from Mr. Newton C. Brainard, P. O. Drawer 538, Hartford 1, Connecticut:

"Last fall you printed a story of mine regarding the twibill. Incidentally, this is spelled "twybylle" in Nathanial Lloyd's "History of the English House," which lists it among the thirteenth and fifteenth-century tools.

A letter in the *London Field* of December 15, 1955, lists a similar tool known as a "Threvill." Unfortunately, the picture and description failed to give a clear explanation of it. It is a mortising tool used in hurdle making."

Mr. Arthur Woodward, 1680 E. Loma Alta Drive, Altandena, California has written the following:

"As an interested reader of *The Chronicle*, I noted in the last issue a comment by Mr. Newton C. Brainard on "The Twibill". As a matter of curiosity I followed up the origin of the term and in the *Dictionary of Archaic and Provincial Words*, 2 vols. by J. O. Halliwell, London 1901 (5th Ed.) I noted, p. 897, vol. 2:

"TWIBIL. (1) A mattock. An implement like a pickaxe, but having, instead of points, flat terminations, one of which is horizontal, the other perpendicular. *Herefordsh.*

(2) An instrument used for making mortises, 'Twyble an instrument for carpenters, *bernago'*, Palsgrave. The two meanings of this word have been frequently confused.

'Ze, ze, syd the twybylle,
Thou spekes ever ageyne skylle,
I-wys, i-wys, it wylle not bene,
Ne never I thinke that he wylle thene.
MS. *Ashmole* 61.' "

The 'bill' in itself was an old agricultural implement, which in medieval days became a pole arm for fighting men. 'Bows and bills' were the weapons for the foot soldiers and during the 17th century at least swaggering ruffians in England were also called "twibills". (Vide *Dictionary of Slang and Colloquial English* by John S. Farmer & W. E. Heney, London, 1912.

It would appear in view of its ancestry that the "twibil" was primarily an agricultural implement and by virtue of transposition of the word found a further application to a carpenter's tool, the mattock probably antedating the mortising hatchet. It wouldn't be the first time that such an interchange had taken place.

Lawrence B. Romaine (the cocky jongleur of Weathercock House) and his item on "How to Make a Pen" was also most informative. However he should have mentioned that to make a commercial quill pen, either of the Dutch or English style, the processes were much more involved than merely plucking of goose or hen quill and scraping and slitting it.

For the various steps necessary to make a good quill pen I refer the readers of *The Chronicle* to the item "History of Writing Materials" in *The Saturday Magazine*, Jan. 13, 1838, London, pp. 14-16. and to the item on "Quill Pens" in the *Scientific American*, Aug.

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HANDWORKING SILVER

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of zinc and copper and made to melt at an exact temperature. Probably the most important single factor in successful soldering is cleanliness.

1. R. Campbell, *The London Tradesman. Being a Compendious View of All the Trades Professions, Arts, both Liberal and Mechanic, now Practiced in the Cities of London and Westminster. Calculated for the Information of Parents, and Instruction of Youth in their Choice of Business.* (London: T. Gardner, Printer, 1747'.
2. Philippe Macquer, *Dictionnaire portatif des arts et metiers, contenant en abrege l'historie, la description & la police des arts et metiers, des fabriques et manufactures de France & des pays etrangers.* (Yverdon: 1767), T. III, pp. 67-70.
6. The practice of silversmiths locating their shops in their own or other houses is clearly revealed in the following advertisements. *The South Carolina Gazette,* December 28, 1734, June 24, 1751, February 24, 1757, November 10, 1759 (Cited in Prime, *Arts and Crafts,* pp. 76, 99, 63); *The Maryland Gazette,* July 5, 1749, April 16, 1761; *The New York Mercury,* November 29, 1762; *The New-York Gazette and the Weekly Mercury,* July 31, 1769, April 25, 1774; *The Pennsylvania Gazette,* September 24, 1747.
7. Diderot, *Encyclopedia,* Plate XV, Orfevre Grossier, Petit Fourneau.
8. See Appendix IV on Hand-Working Silver.
9. See again, Appendix IV, Hand-Working Silver.
10. For details on dimensions of the forge, see architectural drawings.

Comments From Readers

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19, 1948, p. 384. The latter is most explicit in the hot sand and acid treatment. If however one wishes to obtain a glimpse of the making of the new fangled steel pen nibs I think the article in *The Saturday Magazine,* Feb. 17, 1838, pp. 63-64, is most illuminating.

P. S. I wonder if someone could inform me where I might obtain a copy (English) of *The Collins Company . . 100 Years,* 1825-1926."

Mrs. Arnold Miles of 6152, 31st St. N.W., Washington 15, D. C. has passed on this interesting bit of information.

"We took an elderly couple today on a trip out to the Beaver Hat in Middleburg. While we were there, one of the owners was bemoaning the fact that they had never found a real mid-19th C. beaver hat. Later, over lunch, our friends, the Louis Brownlows, told us this story about Mrs. Brownlow's father, for many years a Representative from Tennessee.

He was 8 years old when the Civil War started. During the War, when things got hard at home, he worked at making beaver hats. His first job was trapping rabbits and beavers, but he gradually worked into different jobs in the making of them. I asked Mr. B., who has an extraordinary memory, if he could recall anything about how it was done. He said that after the animal was skinned, the fur was shaved off onto a table with a razor. When a proper amount of fur was

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A TRADE! A TOOL!

(With sincere apologies to Shakespeare).

BY LAWRENCE B. ROMAINE.

Have you ever sat down at a typewriter, or simply with a pen, and decided to write something? Try it. It often works out far better than sitting down with an article all planned and trimmed to fit; too often these don't fit at all.

At the moment I hav'nt a trade or a curious tool in mind that The Chronicle has'nt already done to a turn. Sometime when you have a minute or an hour — or maybe a morning would be better — take all the issues of The Chronicle and run through them. You will be quite surprised what we have done through the years. You will realize what a task presents itself to those of us who try to keep plugging to fill these new Chronicles. I don't doubt you have tried, and belittle no efforts — this is just an excuse. It is also an apology for what you may have to read, for at the moment, I don't know whether it will be any good or not!

Just how many of our members are on our mailing list I don't know. For those of you who are, and may have already read my first page in our catalogue 158, please believe me when I say that the incident actually happened. One of our institutional hosts of some years ago DID hang up a strange tool or gadget to "stick" us with — and stuck us — (I was'nt there.) Also he did buy that old Charles Broadway Rouse catalogue and found therein the very tool the Association failed to identify! If I had been with you, I would have flunked the examination too. I am NOT sitting on any throne of judgement, believe me. It seemed a good point and still does. All of us are missing a bet (I think) in studying too narrowly the 16th, 17th and 18th century trade manuals and plates. We are neglecting the later 19th century catalogues and pamphlets of the tools and trades we ought to be more familiar with. We are filling our heads with knowledge of things we will probably never see except in museums — and for the most part, examples of trades that are already labeled properly and known.

When a stock broker chats about stocks over a teacup or a cocktail, one's first reaction is that he has some to sell! Likewise an automobile salesman or an insurance man; — the logical conclusion is that he wants to sell. In the case of members of our association who are dealers in antiques, books or manuscripts, this follows true to form BUT I do think there are exceptions to the rule. I do think it is reasonable to suppose that at heart, and aside from eating and paying taxes, the dealer members of our organization are sincerely interested in the study and development of American trades and their tools. Sure I sell the old catalogues, but so do other dealers. Also, as I tried to point out in our No. 158, I am trying to warn our own members against themselves! How many of you have settled estates and cast to the junkman untold tons of old Sears Roebucks? Don't buy them from me — save your own. IF you

have been culpable of this crime against history, did you at least look over the old brochures? Was there a Fiske catalogue of weathervanes — a never to be forgotten record of American designs? Was there a Williams Novelty catalogue that had illustrations of tools you never heard of before? Was there a Prince catalogue of horticulture ca. NY. 1830 with woodcuts of every garden tool ever used in this Country? Did you ever see a catalogue of nothing but apple parers? Never mind OUR catalogues; get conscious of your own, save them and study them. Every tool of importance to our education was'nt made before 1850 — and every year that goes by we lose the chance of preserving the pictorial panorama of the inventiveness of the American craftsman in our last century.

The last century? And what of the 20th century? Is today's news tomorrow's history? Where shall we stop? Should a complete collection of American transportation have manuscript and printed background for the first Ford car as well as the first wheelbarrow, or not? By the same token, if we preserve the first crude blacksmith's tools that "ironed" the wheelbarrow's wheel, should'nt we consider the tools used by Henry Ford's first workmen? Then again, how long will the present hand tools stay put? How soon will they be entirely obsolete and replaced with one atomic machine that will do everything? I don't know — I'm asking you? Do you know all the carriage makers' tools by name and use that are only (some of them) 35 years old, and even today curiosities to our younger members in their thirties?

As a dealer in Americana and a specialist in the field of development of American arts, crafts, professions, trades and industries, I have been able to keep my finger on the pulse of American antiquarian book interest. I have seen the bibliographies change their dates. A very short time ago, American fiction was hemmed in by Mr. Wright's exhaustive study that brought the collecting world to 1850. First editions (and there are exceptions to every rule, of course) before 1850 were avidly collected, but after that, considered of little account. His new work brings us up to 1875 — and his next will undoubtedly carry to 1900. Avery library of Architecture at Columbia University (*and* others) used to consider books. pamphlets, manuscripts and drawings after about 1850 of little value and not worthy of the library's space. Today they are preserving our famous Gay Nineties. At the moment, some of our libraries have suddenly realized there is little on hand about the bungalows of 1910. Where does it stop? Hasn't it got to go on indefinitely? It IS going on, and I just want to make sure that the Early American Industries Association does'nt lose sight of the fact that there are still hand tools kicking about, used in our own childhood, that are no more; that they ought to be preserved as stepping stones in industrial development, and that WE ought to be the ones to see that they are not lost to posterity — like the very gadget "to stretch a leather shoe for a bunion" advertised by Charles Broadway Rouss in April 1904.

All this may seem silly to many of you. It is a general conception in the world of students of the past that the older a subject, book, tool or whatever, the more valuable. I could cite a hundred instances to the contrary. Take the file of "The Friend", published in Honolulu from the eighteen forties; our American Marine libraries have complete files up to about 1870, but very few bothered to preserve the later years. I realize fully that space and money are contributing factors. I do not question the practical date lines of the American Antiquarian Society at Worcester, the John Carter Brown Library at Providence, our own Old Sturbridge Village (God knows its our own, considering the number of times they have been our hosts!), Wintherthur, Colonial Williamsburg, Roscoe Smith's Old Museum Village, Cooperstown and Shelburne Museum. I have always felt that only a specialist COULD really know his or her subject or field. I would'nt suggest that those who preserve the 17th, 18th and 19th centuries change for a minute. Let us keep and foster our specialists, both library, museum and individual collector. *But* let's try to create new specialists who will keep that old phase in mind — "Today's news is tomorrow's history," and preserve for posterity EVEN the silly little things YOU and I remember in our younger days — that are no more. Roscoe Smith at Monroe is on the right trail — he has EVERYTHING, and recognizes far better than most of us that many trades and tools are dissappearing daily — he is criticised for having a "hodge-podge" — and yet he is preserving what another generation will need badly.

Comments From Readers

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in a pile, it was felted together by snapping it with a bow-string. A heavy bow, about 6 feet long, with a heavy gut string. The snapping of the fur began at one edge and gradually moved across the pile, back and forth, for a LONG time. Presently it could be picked up, a roundish piece bigger than a large platter. This piece was well soaked, and then pounded onto a cone-shaped wooden form with a wooden mallet, and left to dry. When it was picked off, it stood up stiff, maybe about 3 feet high. It was then soaked again, and beaten with the hammer onto a wooden block the shape of the hat. Soaked and beaten, until it shaped out properly. (This must be much the same thing as beating out copper or silver, eh?). Finally it was left to dry. The edges of the brim were nicely trimmed with the razor, and then the nap on a beaver felt was raised with a heavy comb and brush. Rabbit felt could not be napped like this because the hairs were too short — it was merely roughed up a little.

They both agreed that the process stopped right there. Since I've never seen such a hat, I wouldn't know if it had a sweat band, or a lining of some sort."

Old Blacksmith Shop

(Continued from Page 8)

conderoga last winter, handled the job, saying it was one of the trickiest brick buildings they had ever transported overland. Biggest obstacle in their way, after the building was loaded on the 24 wheel rubber tired trailer, was the dozens of light and telephone lines that lay in the path of the 24 foot high building. With the able assistance of crews from the Green Mt. Power Co., and the New England Telephone Co., the job was completed without mishap in the space of just 6 hours. There still remained the task of moving the old smithy's shop across the museum grounds to its final location at the museum, which will require another week to complete.

When the building is opened to the public in the spring it will be furnished complete with all the blacksmith's tools and equipment, just as it was in the middle of the 19th century, during its heydey. It is planned that an old-time smithy will even be working the forge to show moderns just how horseshoes were made, for example, and iron was forged. The museum is open from May 15th each year to October 15th.

MAIL RETURNED

Mrs. C. B. Gilmore, 220 Nutley Avenue, Nutley, N. J.
Fred J. Finnerty, 122 Charles Street, Boston, Mass.
L. F. Cuthbert, R.D. Hammond, N. Y.
Otto L. Laxy, 27 Radford Street, Yonkers, N. Y.

CHANGE OF ADDRESS

Miss Dorothy C. Barck, Cooperstown, N. Y.
Donald Bradbury, 11 Little Rest Road, Kingston, R. I.
Mrs. B. Earl Clark, 4890 North Lake Drive, Whitefish Bay, Milwaukee, Wisconsin
Miss Anna K. Cunningham, Supervisor of Historic Sites, Division of Archives & History, Room 330 Education Building, Albany 1, N. Y.
E. C. Fales, 1812 Old Wood Road, Rockford, Illinois
Jack Gordon, 307 East 67th Street, New York 22, N. Y.
William C. Halpine, Monroe, Conn.
Lawrence E. Kline, 904 W. First Street, Dixon, Illinois
W. E. Kreuer, Heyburn Road, Glen Mills, Pa.
Arnold Zlotoff, 9 Glen Road, Lakeview, West Hempstead, N. Y.
Lewis B. Sebring, Jr., 8 Union Street, Apt. 3, Schenectady N. Y.
H. J. Swinney, 5 Bridges Road, East Brimfield, Mass.
John Mack, 31 Providence Highway, Norwood, Mass.
C. Malcolm Watkins, U. S. National Museum, Washington 25, D. C.
Dard Hunter, Jr., The Mountain House, Chillicothe, Ohio
Howard Stephenson, Boston University, 84 Exeter Street, Boston 16, Mass.
Mr. and Mrs. Joseph A. Link, R.F.D. #2, Totoket Road, Bronford, Conn.
K. C. Larabee, Cherry Lane, Basking Ridge, N. J.
Hempstead, L. I.: Charles Vanderveer, III, 83 Cathedral Ave.

DECEASED

Mrs. Irma P. Anderson, Ohio State Museum, Columbus, Ohio (1500)
Albert C. Marble, 8 Berwick Street, Worcester, Mass. (413)

NEW MEMBERS

ARIZONA

Phoenix: Reese Verner, P. O. Box 1708 (2122)

CONNECTICUT

Norfolk: Mr. and Mrs. Frederick K. Barbour (2091-2092)
Ridgefield: Jack Sharp, R. D. 5 (2123)
West Norwalk: Frank C. Merschrod, 1750 Farm, West Norwalk Road (2139)

ILLINOIS

Oak Park: Dr. and Mrs. R. M. Cassidy, 410 Lake Street (2107-2108)
Des Plaines: Leighton A. Wilkie, 254 No. Laurel Ave. (2101

LOUISIANA

Baton Rouge: Gary S. Dunbar, Dept. Geography, Louisiana State University (2104)

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Sturbridge: Dr. M. B. Noel, P. O. Box 145 (2099)
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MISSOURI

Webster Groves 19: C. G. Schelly, 533 Sherwood Drive (2103)

NEW HAMPSHIRE

Hillsboro: Richard W. Withington (2114)
New Ipswich: I. E. Boucher (2140)

NEW JERSEY

Bay Head: Reg and Helen Tickner, The Bay Shop, Box 546 (2128)
Caldwell: Mr. and Mrs. John R. Francis, 26 Knollwood Terrace (2112)
Park Ridge: John B. Blake, Box 63 (2098)
Ridgewood: Mrs. Walter F. Sloan, 328 Graydon Terrace (2090)
Short Hills: Ralph G. Morison, 75 Whitney Road (2138)
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Brooklyn 13: Arthur Nesin, 612 Empire Boulevard (2095)
Cornwall-on-Hudson: Mr. and Mrs. Lee B. Mailler, 16 Grandview Avenue (2097)
Glen Falls: Julius Roethke, P. O. Box 294 (2115)
Great Neck: Mr. and Mrs. William H. Osborne, 17 Claire Street (2146)
Hempstead: Mr. and Mrs. F. Kenneth Harder, 89 Jerusalem Avenue, Box 111 (2133)
Kingston: Myron S. Teller, 155 Pearl Street (2121)
Newburgh: Mr. and Mrs. Edward P. Skyer, 877 Broadway (2118)
Newburgh: David E. Tower, 17 Overlook Place (2131)
New York City 5: Henry A. J. Ralph, 40 Wall Street (2124)
Port Chester: Arnold Bakers, Inc., 10 Traverse Ave. (2109)
Rockville Center, L. I.: Dr. Willard J. Davies, 290 Hempstead Avenue (2120)
Scarsdale: Miss Florence J. Lang, Northgate, Garth Road (2106)
Stony Brook, L. I.: Miss Margaret V. Wall, Suffolk Museum (2125)
Tarrytown: Dr. Harold Dean Carter, Sleepy Hollow Restoration, (2136)
Tuxedo Park: Mr. and Mrs. Richard M. Stevens (2093)
Utica 4: Munson-Williams-Proctor Ins., 312-318 Genesee St. (2112)
Utica: William E. Cusak, 1504 Kemble Street (2129)
Washingtonville: Brewster Board (2116)
White Plains: Mrs. Karl H. Sewall, 90 Bryant Avenue (2096)

OHIO

Mount Vernon: James A. Beam, 120 E. Chestnut Street (2083)
Youngstown 12: Dorman E. Swan, 8162 Hitchcock Rd. (2135)

OKLAHOMA

Tahlequah: Mr. and Mrs. B. L. Kinkade, 210 Keetoowah (2141)

OREGON

Portland 2: Mrs. William Lang, 3077 N. E. Hoyt (2145)

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Bethlehem: Ralph G. Swartz, Real Estate Dept., Bethlehem Steel Co. (2105)